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Inside Wallops

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NASA Uses a Business Jet to Test the Synthetic Vision System

Imagine every flight is in clear skies. Revolutionary cockpit display technology being developed by NASA may make “flying blind” a thing of the past.

Serving as an airborne laboratory, a Gulfstream GV business jet with a modified cabin recently departed the Newport News/Williamsburg International Airport for the short flight to NASA Wallops Flight Facility using NASA’s Synthetic Vision System (SVS).



NASA Photo

The Synthetic Vision System uses new and existing technologies, such as Global Positioning System signals, terrain databases and sensors, to incorporate data into displays in aircraft cockpits. The displays show terrain, ground obstacles, air traffic, landing and approach patterns, runway surfaces and other relevant information to the flight crew.

The advanced cockpit technology displays real-world environments offering pilots a clear three-dimensional picture of the terrain outside the aircraft even in the worst weather or darkest night conditions.

Because limited visibility is one of the greatest contributors in fatal aviation crashes, NASA’s Aviation Safety Program (AvSP), based at Langley Research Center, Hampton, Va., is working with industry to develop SVS technologies for existing and future aircraft. The new technology would offer pilots a clear, electronic picture of what’s ahead outside their windows, no matter what the weather or time of day.

In late June, early July, Gulfstream’s Senior Production Test Pilot Chip King flew with NASA pilot, Mike

Norman, making several approaches to the Wallops Airport using computer generated graphical information. King relied on visual sight and traditional cockpit instrumentation to ensure flight safety while Norman’s side of the cockpit windshield was intentionally veiled blocking his visibility. Because of their own limited visibility, Norman relied on the SVS cockpit displays for a clear electronic view of what was outside the window.

From workstations set up in the cabin, NASA researchers and a Gulfstream flight-test engineer monitored multiple systems to determine the accuracy of the terrain database, responsiveness of the pilots to displayed information and the sensitivity level of sensors and radars used to detect obstructions not present in the database.

In addition to the SVS, a Runway Incursion Prevention System (RIPS) on board the Gulfstream also is being tested and evaluated. RIPS has an electronic moving map of the airport surface and can alert the crew of any possible traffic on the runway. A Data Integrity Monitoring Equipment system insures accuracy by using sensors to compare the real world to the pictures being generated.

“NASA has already tested the synthetic vision and runway prevention systems on board a NASA 757 aircraft,” said Randy Bailey, SVS principle investigator. “Now we’re excited to see it fly on another type of aircraft, like the Gulfstream, which is an innovator in aviation technology.”

NASA researchers hope to use this synthetic vision technology to promote safety in general aviation aircraft, as well as in commercial airliners. Testing using the Gulfstream aircraft also is being conducted from Reno, Nevada.

The Synthetic Vision Systems General Aviation element is part of NASA’s Aviation Safety Program, which is a partnership with the Federal Aviation Administration, the Department of Defense, aircraft manufacturers, airlines and universities.

Libby West, Range and Mission Management Office, was the mission manager for this project.

Wallops Shorts.....

In the News

Daily Times

“Aerospace May Bring Year-Round Economy to Town”

On the Road

Ed Parrott, Wallops-Teacher-on-Loan, conducted a rocketry program at the Pocomoke YMCA on July 8.

New Retirees

Robert L. (Bobby) Wessells retired from NASA Wallops Flight Facility, effective July 2 with 42 years of service. Wessells was an electronic technician in the Electrical Engineering Branch.



Photo by James Mason-Foley

James L. (Jim) Mitchell (above) retired from NASA Wallops Flight Facility effective July 3 with 38 years of service.

Mitchell was hired by NASA in 1966 under the Engineering Technician (Apprenticeship) Program and retired as a contracts specialist in the Wallops Procurement Office.

Impressed by the Wallops’ Friendly Atmosphere

“.....the tour the Wallops staff gave our group was interesting, engaging, and helpful. I was not aware of the breadth of research at Wallops.....”

We were particularly impressed by the friendly atmosphere at Wallops and the knowledge and enthusiasm of the staff we met during our tour.

Thanks again for showing us the interesting activities and research performed at Wallops.”

..... 2004 NASA Academy
Students, GSFC

June was Mild and Dry

By: Bob Steiner, Meteorologist

With an average temperature for the month of 72.5 degrees, we find June to have been 1.1 degrees above the normal monthly average of 71.4. We only exceeded the daily average temperature on 11 days, but we achieved warmer than normal low temperatures on 19 mornings. The highest temperature recorded in June



was 90 degrees, occurring on the 9th, 10th and the 18th. The 90 degree reading on June 18 set

a new daily record. The old record was 88 degrees set in 1975. Our coolest morning temperature was 51 degrees recorded on the morning of the 13th. No record lows were set or tied during the month.

June was about a third drier than normal with a total measurable rainfall of 2.07 inches. This is 1.09 inches less than the normal monthly average of 3.16 inches. The greatest one day rain total was the 0.65 inches recorded on June 26. Wallops recorded measurable rainfall on 10 days verses our normal of 8 days.

Only five days in June had winds of 29 mph or greater. Thirty-two mph winds were experienced on the 5th and the 17th.

Average daytime highs for August begin at 85 degrees and only cool to 82 degrees by months end. The record high for August is 101 degrees, recorded on August 10, 1977. Overnight lows begin at 68 degrees and slip to 66 degrees by months end. The record low for August is 47 degrees recorded on August 30, 1982. We can anticipate measurable rain to fall on an average of nine days during August with an average total of 3.71 inches.

August is the month when the Bermuda High begins to recede eastward allowing an increase in tropical weather activity over the western Atlantic Ocean during the last half of the month.

The NOAA 2004 Hurricane season outlook shows it is an even bet that we will experience an above normal tropical season this year. The outlook calls for 12 to 15 tropical storms, 6 to 8 of which will become hurricanes. Two to four of these could become major hurricanes. Enjoy your summer by being safe both on the water and on the road.

Raytheon Honors Wallops Employees

At the annual Raytheon ITSS business luncheon held June 28, two employees received awards for outstanding contributions in support of project work performed at Wallops.



Peggy Jester

Steve Klosko, Raytheon Program Manager, presented the Management Excellence Award to Peggy Jester, Raytheon Group Leader for NASA's Observational Science Branch. Jester was recognized for her efforts in support of the GLAS Laser Altimeter.



Annette Conger Photos by George Hayne

Annette Conger was the recipient of the Raytheon Peer Award. Conger was honored for her efforts in support of GLAS software testing, TOPEX/GFO engineering assessment, and Jason software development.

Raytheon ITSS has provided altimetry, meteorological and system administration support for NASA's Observational Science Branch at Wallops Flight Facility for over six years. Raytheon ITSS provides Center Network Environment (CNE) support to the Wallops Flight Facility.

"A World of Thanks"



Photo courtesy of Jay Pittman

Jay Pittman, (left) Chief, NASA Wallops Flight Facility, Range and Mission Management Office, (RMMO), recently presented "A World of Thanks" award to LCDR John Wargi of the Navy's Surface Combat Systems Command.

LCDR Wargi was instrumental in the coordination of requirements and operations scenarios during the 2003 Combat Ship System Qualification Tests

(CSSQT) conducted at Wallops. His work was a key component of the unified effort of the NASA, SCSC, NavAIR team that was so successful during that effort. His leadership, teaming skills, and 'get it done' attitude were critical to the success of the CSSQT mission.

The RMMO, Code 840, "A World of Thanks" Award is given to individuals or groups whose contributions demonstrate excellence in the support of RMMO missions and projects.

Property Awareness Credit Card Purchases

Equipment purchased with a credit card may meet the criteria for an equipment control number and should be tagged for tracking. When placing an order on a credit card you also are required to complete an Order for Supplies or Materials, Optional Form 347. Forward a copy to Receiving, Building F-19.

For more details call Regina Waters at x1337 or Alvin Taylor at x1360.

Career Coach at Wallops

Career Coach, Mary Mort, will be available for private appointments with Civil Service employees on Thursday, July 22 and Friday, July 23 in the Building E-2, Training Room.

To schedule an appointment, contact Tracey White at x66-7823 or Mary Mort at x66-5794.

Wallops Blood Drive

When: July 20
Time: 9 a.m. - 3 p.m.
Where: Building F-3

For more information, contact Linda Layton at x1561

Inside Wallops is an official publication of Goddard Space Flight Center and is published by the Wallops Office of Public Affairs, Extension 1584, in the interest of Wallops employees. Recent and past issues of *Inside Wallops* also may be found on the NASA Wallops Flight Facility homepage: www.wff.nasa.gov

Editor

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